

Claims

1. In a combination of a closed compartment associated with an air circulation system including at least one blower associated with an air duct for effecting a flow of air between an inlet located exteriorly of said compartment and an outlet located interiorly of said compartment, with this flow passing through at least one air filter element, and at least one interior compartment sensor for detecting the degree of contamination of the air and being coupled to a control arrangement, the improvement comprising: said control arrangement including a memory; a performance map of the normal operation of the air circulation system being stored in said memory and containing information indicating a pre-determined decrease over time of the degree of contamination of the air by a known airborne contaminant; and said control arrangement including a comparing circuit for comparing the actual degree of contamination of said air over time with the values contained in said map, and for issuing a warning signal upon finding a deviation from said values contained in said map,

2. The combination, as defined in claim 1, wherein said at least one interior compartment sensor is one of a particle sensor or a particle counter.

3. The combination, as defined in claim 1, wherein said airborne contaminant is one of toxic particles and/or other particles that are harmful to health; and said interior compartment sensor being designed to respond to said airborne contaminant.

4. The combination, as defined in claim 1, wherein said interior compartment sensor is capable of detecting particles whose particle size amounts to a size down to the order of magnitude of 0.3 to 3 μm .

5. The combination, as defined in claim 1, wherein said at least one filter element is a fresh air filter element.

6. The combination, as defined in claim 1, wherein said at least one filter element contains an activated charcoal filter.

7. The combination, as defined in claim 1, wherein said blower is a variable speed blower capable of producing a higher pressure in said compartment

than exists outside said compartment.

8. The combination, as defined in claim 7, and further including a pressure sensor located in said compartment and coupled to said control arrangement, sends a signal thereto representative of said sensed pressure; said control arrangement having stored in its memory a value representing a predetermined minimum pressure value which is compared with said sensed pressure; and said control arrangement being coupled to said blower and being operable when said sensed pressure is less than said minimum pressure for causing the speed of said blower to be increased.

9. The combination, as defined in claim 1, wherein said at least one filter element is provided with a coding element which permits an identification of said filter element and is coupled to said control arrangement; and said control arrangement including a coding recognition circuit for recognizing said at least one filter element; said control arrangement including a stored time value corresponding to the maximum amount of time said at least one filter element should be in use before being replaced; an operating time counter operable for summing the accumulated operating time of said at least one filter; and said control arrangement acting to compare the actual accumulated operating time of said at least one filter element with said stored time value and for sending out a warning signal in the event said accumulated operating time exceeds said stored time value.